SPERRY RAND UNIVAC

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UNIVAC® 9000 SERIES

FACTS & FIGURES

SPERRY RAND

Univac 9000 Series

The UNIVAC 9000 Series form a family of outstanding computers ranging from low cost card systems to high performance multiprogramming and real-time oriented computers. The 9000 Series was designed to meet the challenging third and fourth generation system requirements.

Hardware, software and program compatibility is designed into the UNIVAC 9000 Series. This means that, as your organization grows, so can your system—right at the computer site. Each processor can become an integral part of the next level of computing power; predecessor source level programs can also be used by the upgraded systems.

Technological advances in the processors provide the highest capabilities yet designed in a series of systems. UNIVAC Plated-Wire Memory is many times faster than conventional core memories. Monolithic integrated circuits in all models mean new reliability and compactness—another step toward increased profits.

Univac 9200

The UNIVAC 9200 is a card or disc oriented system with exceptional communications capabilities, memory size and speed in its price class. Processor and printer are combined in a single cabinet. Monthly costs start at about $1,000 and outright purchase is offered at unusually attractive prices.

Univac 9200 II

The UNIVAC 9200 II is a natural extension of the UNIVAC 9200 System. The internal speed of the 9200 makes it a simple matter to provide a natural growth path into the low cost tape systems available with the 9200 II. The UNIVAC 9200 II also provides growth for the 9200 disc user, by providing larger capacity, and high speed disc subsystems. The 9200 II offers a solution to today's paperwork explosion by providing multiple printer configurations with a wide variety of print speeds.

Univac 9300

The UNIVAC 9300 is not only a powerful card or disc system, it is also a high-speed magnetic tape system. Basic tape configurations with sorting capability begin at monthly rentals around $3,000 and can be expanded to include communications and concurrency—the processing of one main program and up to five peripheral programs simultaneously. Extra fast memory for this size system can keep tape, disc and other peripherals performing at rated speeds. And processing can continue during all input/output functions.

Univac 9300 II

The UNIVAC 9300 II provides a compatible step up from a UNIVAC 9200, 9200 II or 9300 to a system with a choice of high-capacity UNIVAC 8411 and 8414 Disc Subsystems and high speed printers. These can be coupled with the other high performance 9000 Series peripherals such as communications, paper tape, and magnetic tape to make the 9300 II an extremely fast and versatile data processor. It is available with a Concurrent Operating System which means more work completed in less time.

Univac 9400

This member of the 9000 Series is a powerful and versatile medium scale system with multiprogramming and real-time capabilities.

The UNIVAC 9400 combines in one system the ability to process various data processing applications—including complex engineering or scientific calculations—while meeting all the basic requirements of a real-time communications environment. Multiprogramming permits up to five of these problem programs to be operative at the same time.

Backed up by the UNIVAC 8411 and 8414 Direct Access Storage Subsystems and DCS-1, DCS-4 or DCS-16 Data Communications Subsystems, the 9400 can slash processing time for existing applications and open up new avenues of information processing capabilities. The UNIVAC 9400 offers big-system performance at medium scale cost.

UNIVAC 9400 sofware has been further developed to maintain excellent operating efficiency for tape and disc processing. Within the operating system is a Supervisor, Data Management System, Job Control and a Message Control Program for communications. The language processors include Assembler, USASI COBOL and FORTRAN, and RPG.

Univac 9000 Communications

The entire UNIVAC 9000 Series can communicate with other 9000 Systems, other UNIVAC computer systems, low speed terminals and CRT devices, such as the UNISCOPE*. Univac offers a high degree of flexibility with the 9000 Series. And . . . if your organization spans a wide geographic area, multiple 9000 Series can quickly consolidate your day-to-day operations.

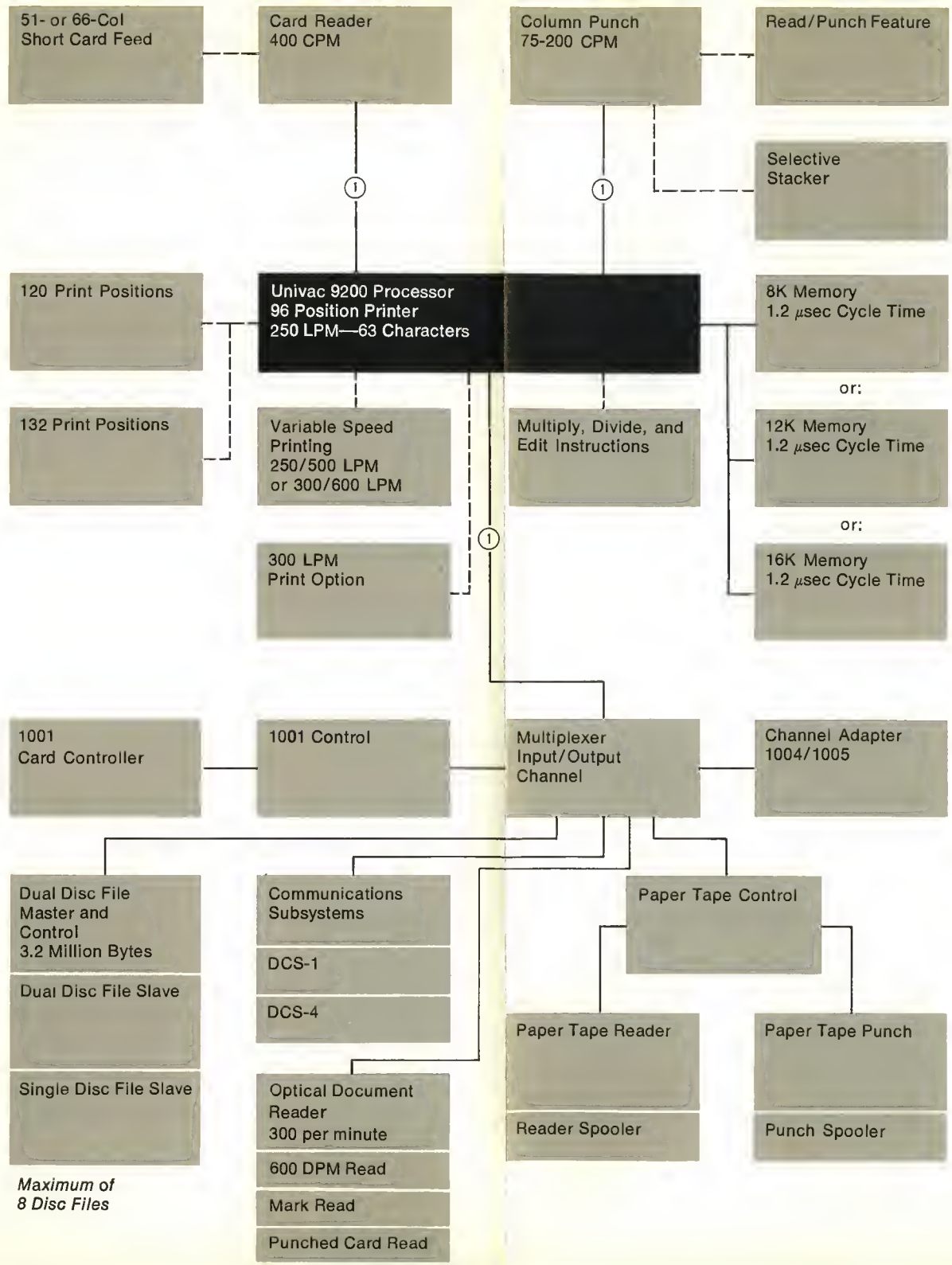
*Trademark of Sperry Rand Corporation.

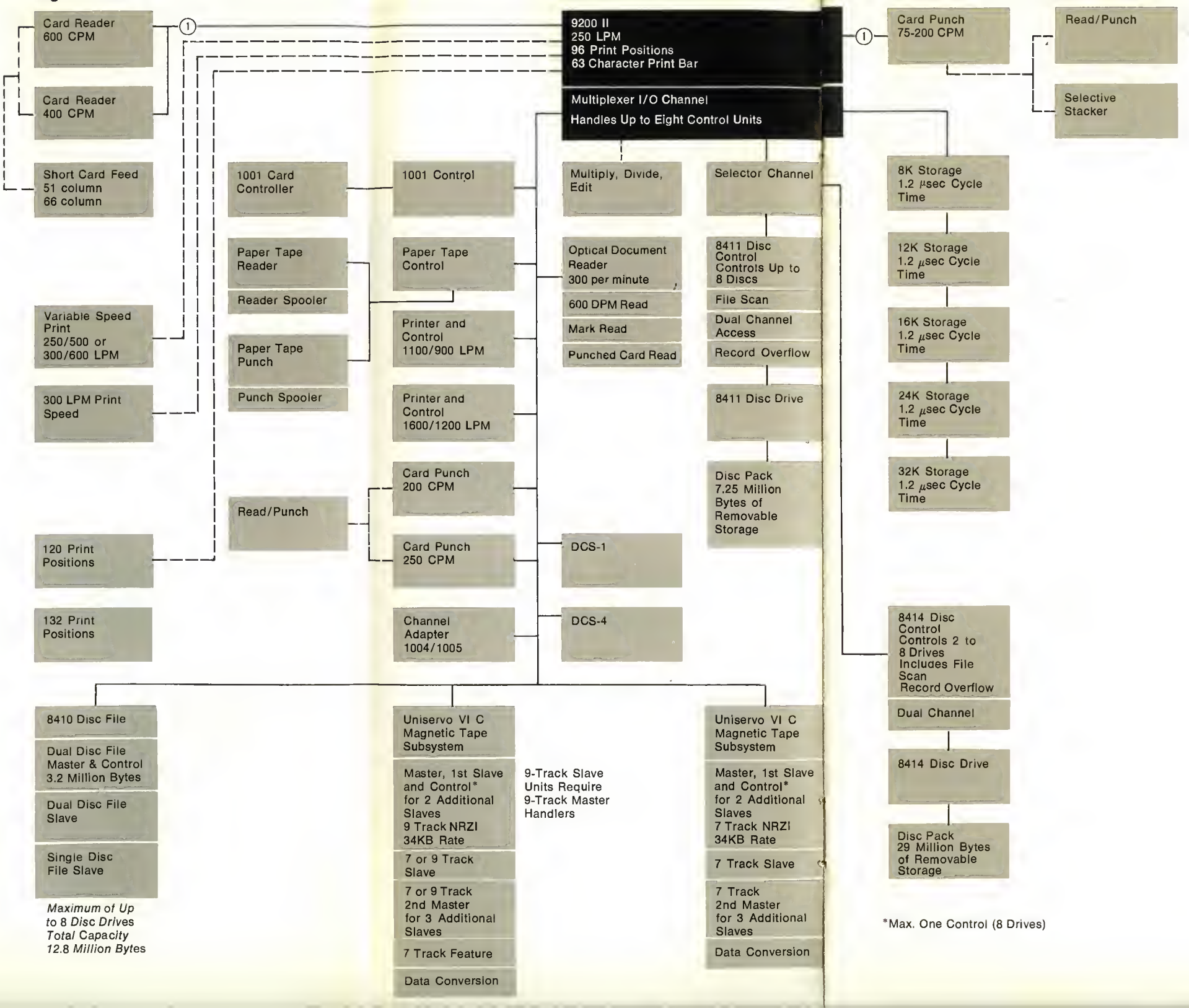
Univac 9200 Card/Disc System

- ☐ Full main storage cycle time is 1.2 microseconds.
- ☐ Main storage has 8,192 storage locations or bytes, field-expandable to 12,288 or 16,384 bytes.
- ☐ The 8410 Disc Drive provides direct access storage of 3.2 to 12.8 million bytes or 6.4 to 25.6 million digits in packed decimal format.
- ☐ Each 8410 Disc Surface can store 10,000 160-byte records plus an 8,000-byte fast access track.
- ☐ Cards are read at 400 per minute. The optional read-punch feature for the column punch permits a second file to be read concurrently at 200 CPM. When used on-line to a 9200, the UNIVAC 1001 Card Controller increases these reading speeds to a total in excess of 2,000 CPM.
- ☐ Cards are punched at 75 to 200 per minute.
- ☐ All peripheral operations are fully overlapped and can proceed independently at rated speeds for most punched card applications.
- ☐ High-speed bar printer prints 63 alpha, numeric or special characters at 250 lines per minute. Variable speed feature employs 48-character type bar—alpha-numeric lines are printed at 250 per minute, and full numeric lines at 500 per minute. In addition, the 9200 can be equipped with a feature which upgrades the bar printer from the basic 250 lines per minute to 300 lines per minute. With the variable speed print feature, 600 lines per minute can be realized for numeric print lines. Ninety-six print positions are standard; 120 or 132 optional. Any character prints in any position.
- ☐ A removable type bar permits use of a wide variety of special type fonts.
- ☐ Processor features fast instruction set and multiply-divide-edit hardware option.
- ☐ Paper tape input/output is provided for the 9200 as well as all other 9000 Systems. Tape reading is performed at the rate of 300 CPS and punching at 110 CPS.
- ☐ Data Communications Subsystems (DCS-1 and DCS-4) provide for up to 8 duplex transmission lines of varying speeds.

Card/Tape/Disc System

- ☐ Full main storage cycle time is 1.2 microseconds.
- ☐ Main storage capacity starts at 8,192 bytes and is field expandable to 12,288, 16,384, 24,576 or 32,768 bytes.
- ☐ 2 to 8 tape units are available, operating at 34 KB. Both 7 and 9 track NRZI tapes are readable.
- ☐ The 8411 Disc Subsystem provides direct access to as many as 58 million bytes of on-line storage. A single 8411 pack can hold 7.25 million bytes and as many as 8 drives can be attached. Average access time is 75 milliseconds while the transfer rate is 156,000 bytes per second. Record sizes can vary with needs.
- ☐ The 8414 Disc Subsystem provides from 58 million to 233 million bytes of variable record length direct access storage. From two to eight 8414 disc drives can be connected to the 9200 II. Drives can be added one at a time. Transfer rate is 312 KB. Average access time is 60 milliseconds. A maximum of 8 subsystems is permitted on high speed selector channels.
- ☐ In addition to the standard 250 LPM bar printer, two high speed drum printers are available. They operate at 1100/900 or 1600/1200 lines per minute.
- ☐ Card reading is done at 400 or 600 cards per minute, or over 2,000 CPM when the 1001 is added. Punching speeds can be 75-200 CPM, 200 CPM or 250 CPM depending on the punch unit selected.
- ☐ The high speed multiplexer channel can accommodate up to 64 devices operating at a combined rate of up to 85,000 bytes per second. A 350,000 byte per second Selector Channel is available for connecting the 8411 and 8414 Subsystems.
- ☐ Like the UNIVAC 9200, the 9200 II can use DCS-1 and DCS-4 Communications Subsystems and handle as many as 8 communications lines of varying speeds.
- ☐ High powered Operating Systems permit Control Stream Operation and concurrent program execution. Programming can be done in RPG, Assembler Language, USASI, COBOL or FORTRAN.




Card Reader 600 CPM
Card Reader 400 CPM
Short Card Feed 51 column 66 column
Variable Speed Print 250/500 or 300/600 LPM
300 LPM Print Speed
120 Print Positions
132 Print Positions
9200 II 250 LPM 96 Print Positions 63 Character Print Bar
Multiplexer I/O Channel Handles Up to Eight Control Units
1001 Card Controller
Paper Tape Reader
Reader Spooler
Paper Tape Punch
Punch Spooler
Read/Punch
1001 Control
Paper Tape Control
Printer and Control 1100/900 LPM
Printer and Control 1600/1200 LPM
Card Punch 200 CPM
Card Punch 250 CPM
Channel Adapter 1004/1005
Multiply, Divide, Edit
Optical Document Reader 300 per minute
600 DPM Read
Mark Read
Punched Card Read
DCS-1
DCS-4
Selector Channel
8411 Disc Control Controls Up to 8 Discs
File Scan
Dual Channel Access
Record Overflow
8411 Disc Drive
Disc Pack 7.25 Million Bytes of Removable Storage
Card Punch 75-200 CPM
Read/Punch
Selective Stacker
8K Storage 1.2 μsec Cycle Time
12K Storage 1.2 μsec Cycle Time
16K Storage 1.2 μsec Cycle Time
24K Storage 1.2 μsec Cycle Time
32K Storage 1.2 μsec Cycle Time
8414 Disc Control Controls 2 to 8 Drives Includes File Scan Record Overflow
Dual Channel
8414 Disc Drive
Disc Pack 29 Million Bytes of Removable Storage
8410 Disc File
Dual Disc File Master & Control 3.2 Million Bytes
Dual Disc File Slave
Single Disc File Slave
Maximum of Up to 8 Disc Drives Total Capacity 12.8 Million Bytes
Uniservo VI C Magnetic Tape Subsystem
Master, 1st Slave and Control* for 2 Additional Slaves 9 Track NRZI 34KB Rate
7 or 9 Track Slave
7 or 9 Track 2nd Master for 3 Additional Slaves
7 Track Feature
Data Conversion
9-Track Slave Units Require 9-Track Master Handlers
Uniservo VI C Magnetic Tape Subsystem
Master, 1st Slave and Control* for 2 Additional Slaves 7 Track NRZI 34KB Rate
7 Track Slave
7 Track 2nd Master for 3 Additional Slaves
Data Conversion
*Max. One Control (8 Drives)

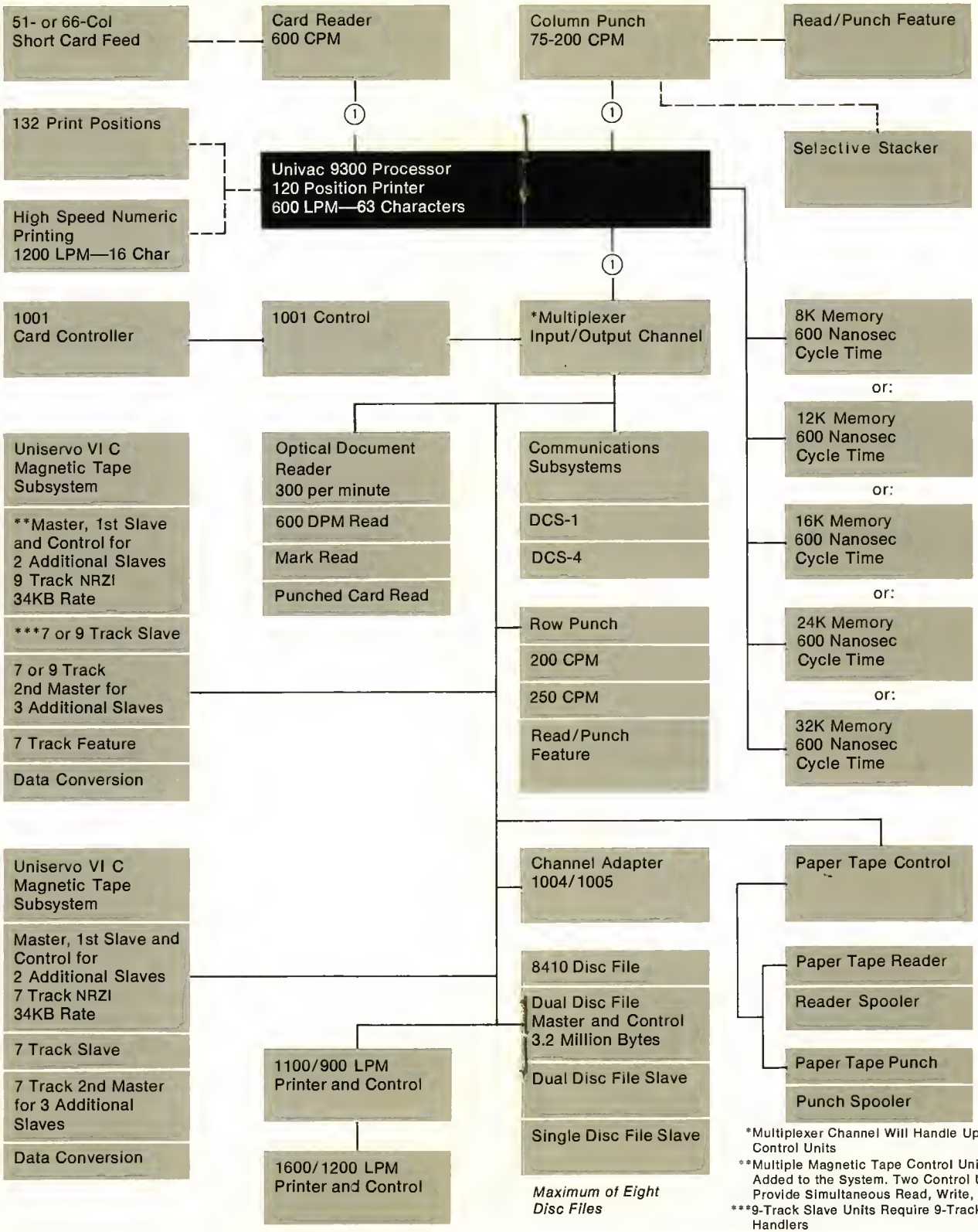
Univac 9300 Card/Tape/Disc System

- Full main storage cycle time is 600 nanoseconds.
- Main storage starts at 8,192 bytes, expands to 12,288, 16,384, 24,576 or 32,768 bytes. Each byte contains eight bits plus parity, and can store two digits or one character of data or instruction.
- System expands from two UNIVAC 8410 Disc Drives with 3.2 million bytes to eight drives with 12.8 million bytes.
- A high-speed buffer permits all disc reading, writing, checking and searching to be performed simultaneously with 9300 processing and peripheral operations.
- Cards are read at 600 per minute. Linked with the UNIVAC 1001 Card Controller, the 9300 can have multi-file input capabilities of over 2,000 CPM.
- Cards are punched at 75 to 200 per minute. Optional Constant speed row punches operate at 200 or 250 CPM; read feature is also available. It is possible to upgrade the 9300 row punch to the faster 250 card per minute speed.
- Basic 3-drive tape system with tape sort and file updating capabilities can be expanded to eight drives with one control unit, or to 16 drives with two control units.
- Tape is ½ inch, 9-track NRZI, recorded at 800 BPI. The transfer rate is from 34,160 (all alpha) to 68,320 (all numeric) characters per second. A 7-track feature provides reading of 7-track NRZI tapes at 200, 556 or 800 CPI.
- Processing is overlapped with card input/output, printing, and tape reading or writing. Simultaneous tape reading, writing and processing is accomplished with a second tape control unit.
- High-speed multiplexer I/O channel accepts 85,000 bytes/second from up to eight subsystems and 64 devices.
- Printing speed is 600 lines per minute for all 63 characters; 1200 LPM with the optional 16-character numeric type bar. One hundred twenty print positions are standard; 132 optional.
- Complementing the basic printer are two high speed printers offering speeds of 1600/1200 and 1100/900 lines per minute. Multiple printers may be used concurrently.
- Up to five peripheral programs (tape-to-print, tape-to-card, etc.) can be handled concurrently with a main processor run.
- Mathpac and FORTRAN software support is included for scientific calculations.
- With a DCS-1 or DCS-4, the UNIVAC 9300 System can service up to eight communication lines with many remote devices connected to the central system.

Univac 9300 II Tape/Disc System

- Full main storage cycle time is 600 nanoseconds per byte.
- Main storage ranges from 16,334-24,576-32,768 bytes of Plated Wire Memory.
- Two high speed printers operating at 1100/900 and 1600/1200 lines per minute are available in addition to the standard 600 LPM bar printer.
- The 8411 Disc Subsystem provides from 7.25 to 58 million bytes of high speed, variable record length, direct access storage. Data on the removable disc packs can be accessed in an average of 75 milliseconds. Data transfer rate is 156,000 bytes per second.
- An 8414 Direct Access Storage Subsystem operates at 312,000 bytes per second with an average access to a record of 60 milliseconds. From two to eight 8414 Disc Drives can be used, each with 29 million bytes of storage available. Maximum capacity is 233 million bytes per subsystem. Record size is variable. Total on line capacity for 6 subsystems is over 1 billion bytes.
- Up to 16 tape drives can be utilized, operating at 34 KB. Both 7- and 9-track units can be used.
- An 85,000 byte per second Multiplexer Channel and 350,000 byte per second Selector Channel are standard.
- All peripherals available with the UNIVAC 9300 are usable on the 9300 II including DCS, Paper Tape, 8410 and the Univac 1001 Card Controller.
- Software includes Disc and Tape Operating Systems, both Non-concurrent and Concurrent. Programming can be accomplished with Assembler, RPG, USASI. COBOL and FORTRAN.

9300 System Configurator

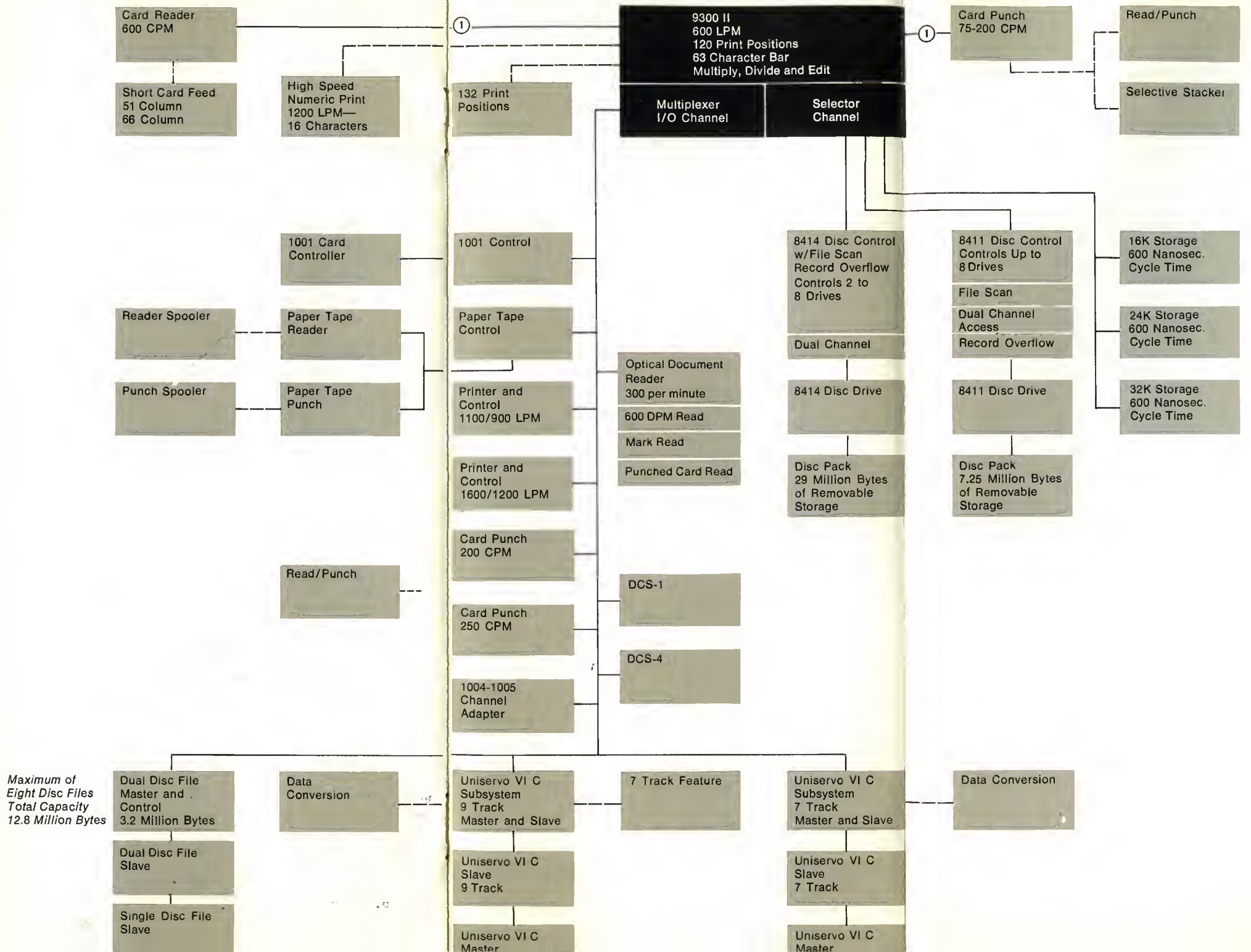


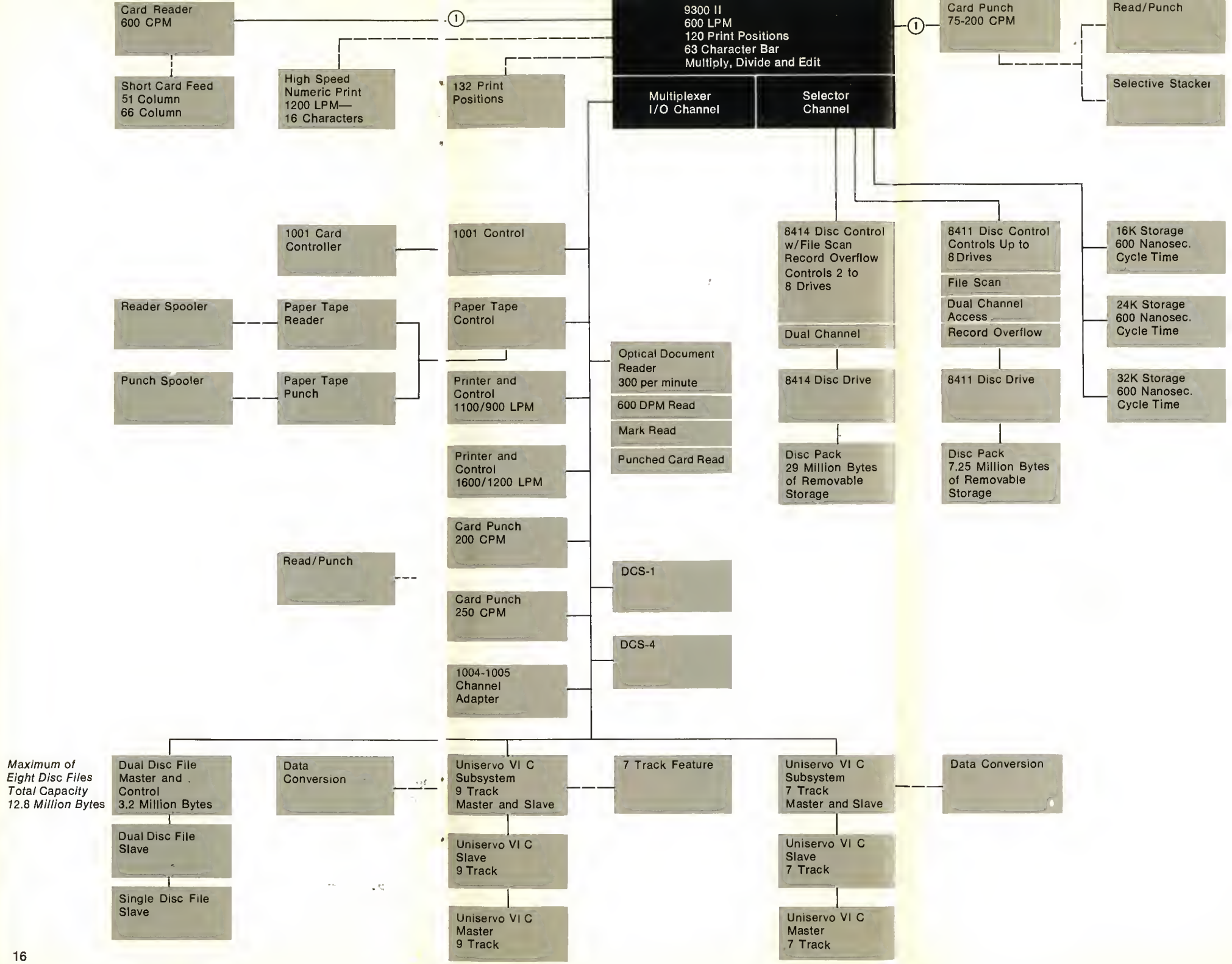
*Multiplexer Channel Will Handle Up to Eight Control Units

**Multiple Magnetic Tape Control Units Can Be Added to the System. Two Control Units Will Provide Simultaneous Read, Write, and Compute

***9-Track Slave Units Require 9-Track Master Handlers

9300 II Configurator




Card Reader
600 CPM
Short Card Feed
51 Column
66 Column
High Speed
Numeric Print
1200 LPM—
16 Characters
132 Print
Positions
9300 II
600 LPM
120 Print Positions
63 Character Bar
Multiply, Divide and Edit
Multiplexer
I/O Channel
Selector
Channel
Card Punch
75-200 CPM
Read/Punch
Selective Stacker
1001 Card
Controller
1001 Control
Reader Spooler
Paper Tape
Reader
Paper Tape
Control
Punch Spooler
Paper Tape
Punch
Printer and
Control
1100/900 LPM
Printer and
Control
1600/1200 LPM
Optical Document
Reader
300 per minute
600 DPM Read
Mark Read
Punched Card Read
8414 Disc Control
w/File Scan
Record Overflow
Controls 2 to
8 Drives
Dual Channel
8414 Disc Drive
Disc Pack
29 Million Bytes
of Removable
Storage
8411 Disc Control
Controls Up to
8 Drives
File Scan
Dual Channel
Access
Record Overflow
8411 Disc Drive
Disc Pack
7.25 Million Bytes
of Removable
Storage
16K Storage
600 Nanosec.
Cycle Time
24K Storage
600 Nanosec.
Cycle Time
32K Storage
600 Nanosec.
Cycle Time
Read/Punch
Card Punch
200 CPM
Card Punch
250 CPM
1004-1005
Channel
Adapter
DCS-1
DCS-4
Maximum of
Eight Disc Files
Total Capacity
12.8 Million Bytes
Dual Disc File
Master and
Control
3.2 Million Bytes
Dual Disc File
Slave
Single Disc File
Slave
Data
Conversion
Uniservo VI C
Subsystem
9 Track
Master and Slave
Uniservo VI C
Slave
9 Track
Uniservo VI C
Master
9 Track
7 Track Feature
Uniservo VI C
Subsystem
7 Track
Master and Slave
Uniservo VI C
Slave
7 Track
Uniservo VI C
Master
7 Track
Data Conversion

- Full main storage cycle time is 600 nanoseconds per two bytes.
- Main storage starts at 24,576 bytes, field-expandable to 131,072 bytes. Each byte contains eight bits plus a parity bit, and can store two digits or one character of data.
- Cards are read at 600 CPM.
- Card punching is established at 250 CPM. A read option can be added to the punch.
- The UNIVAC 8411 Subsystem can include a range of one to eight disc drives. Each removable disc pack offers a 7,250,000 byte capacity. The UNIVAC 8411 Subsystem has an average access time of 75 milliseconds, while the data transfer rate is 156,000 bytes per second.
- The 8414 Subsystem provides growth from 2 to 8 disc drives. A single pack offers 29 million bytes of storage with a maximum of 233 million bytes per subsystem. Transfer rate is 312 KB and average access time is 60 milliseconds. More than one subsystem may be used if required.
- Two high speed printers are available with varying speeds on the UNIVAC 9400 System. The faster printer operates from 1600 to 1200 alphanumeric lines per minute. The standard printer operates from 1100 to 900 lines per minute.
- The UNIVAC 9400 central processor provides, in addition to a powerful instruction repertoire, 32 full-word general purpose registers. Processing and multiple input/output operations—such as card reading and punching, printing, tape and disc reading or writing, and communication functions—are all overlapped, thereby providing greater throughput in the overall operation.
- Communications oriented data processing is possible through the use of from one to four Data Communications Subsystems. These subsystems (DCS-1, DCS-4 or DCS-16) can accommodate multiples of one, four, or 16 duplex lines, depending on user requirements.
- Tailored to the tape needs of the individual installation, The UNISERVO* VI C, 12, or 16 offers many features such as—
  - Transfer rates ranging from 34,160 to 192,000 bytes per second
  - Read/read, read/write and write/write simultaneity
- Input/Output channels—the standard multiplexer I/O channel, used for lower speed devices operating concurrently, will accept data at the rate of 85,000 bytes per second. One or two selector channels are available at the rate of 333 KB each.

Uniservo 12 Control 1600 BPI
Controls 16 Phase Tapes

Simultaneous Operation
Provides Second Control

Uniservo 16 Capability*
Permits the Use of Uniservo
16 Tape Units

7-Track NRZI 200, 556,
800 CPI*
Permits Adding 7-Track Units
Includes Data Conversion

9-Track NRZI 800 BPI*
Permits 9-Track NRZI in
Addition to 1600 BPI
Phase Mode

Uniservo 12 Master 9-Track
1600 BPI 68KB
Logic to Handle
Up to 3 Slaves

Dual Density Provides Ability
to Read or Write at 800
and 1600 BPI

Simultaneous Feature
9-Track
Allows Simultaneous W/W
on a Quad Basis Plus R/R
and R/W Operations

Simultaneous Feature
7 and 9 Track Requires
the Two Above Features

Uniservo 12 Slave 9-Track
Same Characteristics as
9 Track Master

Uniservo 12 Master 7-Track
800 CPI 34KB
Logic to Handle Up to 3
7 Track Slaves

Simultaneous Feature
7-Track
Allows Simultaneous W/W
on a Quad Basis Plus R/R
and R/W Operations

Uniservo 12 Slave 7-Track
Same Characteristics as
7 Track Master

Uniservo 16 Tape Unit
7 or 9 Track
200, 556, 800, 1600 BPI
24, 67, 96 or 192KB

Simultaneous Feature
Allows Simultaneous
R/R, R/W, W/W Operations

Dual Density Provides Ability
to Read or Write at 800
and 1600 BPI

*The Requirement for This Feature Is Doubled
When Simultaneous Operation Is Desired

(2 Maximum)
8 Control Units/Channel
2 Req. for Simultaneity

Console Keyboard Printer
Interval Timer
Multiplexer Channel
Maximum of Seven
Control Units

8411 Disc Control
Controls Up to 8 Discs

Dual Channel Access

File Scan

Record Overflow

8411 Disc Drive

Disc Pack
7.25 Million Bytes of
Removable Storage

8414 Disc Control
2 to 8 Discs

Includes

File Scan

Record Overflow

8414 Disc Drive

Disc Pack
29 Million Cycles
of Removable Storage

Dual Channel

Paper Tape C

Paper Tape Reader

Reader Spooler

Minimum Operating System
Configurations

Disc

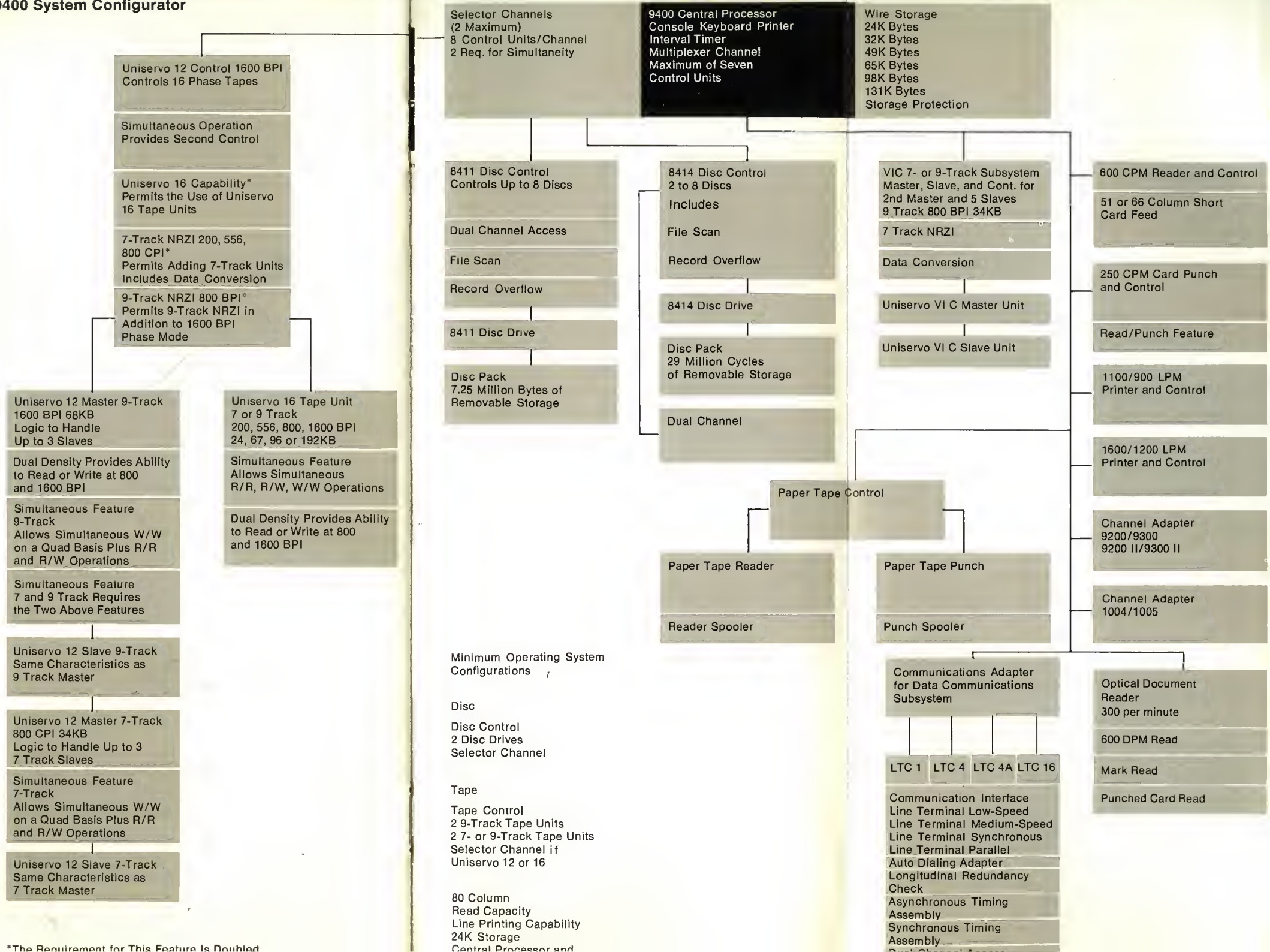
Disc Control
2 Disc Drives
Selector Channel

Tape

Tape Control
2 9-Track Tape Units
2 7- or 9-Track Tape Units
Selector Channel if
Uniservo 12 or 16

80 Column
Read Capacity
Line Printing Capability
24K Storage
Central Processor and
Console

9400 System Configurator



Minimum Operating System Configurations ;

Disc

Disc Control
2 Disc Drives
Selector Channel

Tape

Tape Control
2 9-Track Tape Units
2 7- or 9-Track Tape Units
Selector Channel if
Uniservo 12 or 16

80 Column
Read Capacity
Line Printing Capability
24K Storage
Central Processor and

*The Requirement for This Feature Is Doubled

	9200	9200 II	9300	9300 II	9400
System Orientation	Card/Disc	Card/Tape/Disc	Card/Tape/Disc	Tape/Disc	Tape/Disc
Basic Main Storage	8,192 bytes	8,192 bytes	8,192 bytes	16,384 bytes	24,576 bytes
Maximum Main Storage	16,384 bytes	32,768 bytes	32,768 bytes	32,768 bytes	131,072 bytes
Main Storage Cycle Time	1.2μ sec	1.2μ sec	600 nanosec	600 nanosec	600 nanosec per two bytes
Add (Decimal) Time (Two 5-Digit Fields)	104μ sec	104μ sec	52μ sec	52μ sec	20.4μ sec
Multiply, Divide and Edit	Optional	Optional	Standard	Standard	Standard
Card Read					
Basic Reader	400 CPM	400 or 600 CPM	600 CPM	600 CPM	600 CPM
1001 Card Controller	1000/2000 CPM	1000/2000 CPM	1000/2000 CPM	1000/2000 CPM	
Card Punch	75-200 CPM	75-200 CPM 200 CPM or 250 CPM	75-200 CPM 200 CPM or 250 CPM	75-200 CPM 200 CPM or 250 CPM	250 CPM
Read/Punch Feature	Optional	Optional	Optional	Optional	Optional
Alpha Print Speed					
Standard	250 LPM	250 LPM	600 LPM	600 LPM	1100/900 LPM
Optional	300 LPM	300 LPM 1100/900 LPM 1600/1200 LPM	1100/900 LPM 1600/1200 LPM	1100/900 LPM 1600/1200 LPM	1600/1200 LPM
Variable Speed Printing					
Option 1	250/500 LPM	250/500 LPM	Not available	Not available	Not available
Option 2	300/600 LPM	300/600 LPM			
Numeric Printing (Optional)		Not available	1200 LPM	1200 LPM	
Time Shared Peripherals	Standard	Standard	Standard	Standard	Standard
Magnetic Tape Rate		34K bytes/sec	34K bytes/sec	34K bytes/sec	34K bytes/sec 68K bytes/sec 192K bytes/sec
Simultaneous Tape Read, Write and Process		Not available	Optional	Optional	Optional
Direct Access Storage	3.2 to 12.8 million bytes	3.2 to 12.8, 7.25 to 58 or 58 to 233 million bytes	3.2 to 12.8 million bytes	3.2 to 12.8, 7.25 to 58 or 58 to 233 million bytes	7.25 to 58 or 58 to 233 million bytes per subsystem
Multiplexer I/O Channel Rate	85K bytes/sec	85K bytes/sec	85K bytes/sec	85K bytes/sec	85K bytes/sec
Selector I/O Channel Rate	Not available	350K bytes/sec	Not available	350K bytes/sec	333 bytes/sec ea. (1 or 2)
General Purpose Registers (2 sets)	8 two-byte	8 two-byte	8 two-byte	8 two-byte	16 four-byte
Paper Tape					
Read	300 CPS	300 CPS	300 CPS	300 CPS	300 CPS
Punch	110 CPS	110 CPS	110 CPS	110 CPS	110 CPS
Duplex Communications I/O Lines	Up to 8	Up to 8	Up to 8	Up to 8	Up to 64

About Software

With the 9000 Series, you match programming capabilities with equipment configurations. The operating systems cover the entire range of equipment capability; programming languages for the smaller 9000 Systems are subsets of the languages for the larger configurations. The programming transition from one system to another is a simple growth process toward greater power and flexibility.

The UNIVAC 9200 offers a versatile software package designed to handle the needs of the "first-time user" of cards, discs or communications. The main element of the 9200 package is the Report Program Generator, a tool designed to permit the writing of programs in terms most familiar to users of tabulating equipment. In addition to this flexible language, there is a Gangpunch Reproducer, Assembler, Input/Output Control System, Mathpac scientific subroutines and a number of helpful program testing aids. All in all, a very complete software complement to the outstanding 9200 hardware.

The software for the 9200 II, 9300 and 9300 II is as advanced as the computers themselves. Complete operating systems are tailored to each level of processing power. A 16K 9300 with four tapes or two discs provides a package with the sophistication of much larger systems. Concurrent operation is a feature of larger systems with discs, tapes and communications. Concurrency provides for the running of up to five peripheral programs (tape to print, etc.) with a primary user program. The key word in software is Control Stream, a feature of the Operating Systems which allows a series of pre-scheduled programs to be completely processed with a minimum of operator intervention. Other highlights of the software include RPG, Assembler, USASI COBOL and FORTRAN, Sort and Library and Data File Services. Software for the 9200 II, 9300 and 9300 II System provides efficient and effective control of UNIVAC 9000 card, tape, disc and communications configurations.

The ability to multiprogram five user runs including a real-time program provides the UNIVAC 9400 with a software package consistent with its superior hardware. The multiprogramming capabilities include "time allocation" to assure that each of three program priorities receives a desired share of processing time. The execution of these programs is controlled by an easy-to-use job control language.

Programs written for the UNIVAC 9200/9300 in RPG, BAL, COBOL and FORTRAN are easily converted for use on the UNIVAC 9400 System.

UNIVAC 9200/9200 II Software

Main Storage	9200 System	Card	8410	9200 II * System	Tape	8411-8414
8K	RPG	■		All 8K 9200 Support		
	Gangpunch Reproduce	■		IOCS	■	
	Assembler	■		Sort	■	
	IOCS	■		0768 Printer	■	
	Mathpac	■		Tape Print	■	
	Paper Tape	■				
	Communica-tions	■				
12K	All 8K Card Support			All 8K 9200 II Support		
	IOCS		■	MOS RPG	■	
	MOS RPG		■			
	1004 Adapter	■				
	Sort		■			
16K	All 12K Support			All 12K 9200 II Support		
	Assembler		■	Assembler	■	
	Control Stream		■	NCOS RPG	■	
	Library Services		■	Sort		■
				Control Stream	■	■
				IOCS		■
				COBOL	■	
				FORTRAN	■	
24K 32K				All 16K 9200 II Support		
				Assembler		■
				NCOS RPG		■
				COBOL		■
				Concurrency	■	■

*All 8410 Software can be used on the 9200 II with the appropriate memory.

UNIVAC 9300/9300 II Software

Main Storage	9300 System	Tape	8410	9300 II* System	Tape	8411-8414
8K	All 9200 Card Support					
	IOCS	■				
	Sort	■				
	0768 Printer	■				
	Communica-tions	■				
	Paper Tape	■				
12K	All 8K Support					
	MOS RPG	■	■			
	1004 Adapter	■				
	Sort		■			
	IOCS		■			
16K	All 12K Support			All 16K 9300 Support		
	Assembler	■	■	Sort		■
	NCOS RPG	■	■	IOCS		■
	Control Stream	■	■	Control Stream		■
	Library Services	■	■	Library Services		■
	COBOL	■				
	FORTRAN	■				
24K 32K	All 16K Support			All 16K Support		
	Concurrency	■	■	Assembler		■
				NCOS RPG		■
				COBOL		■
				Concurrency	■	■

*All 8410 Software can be used on the 9300 II with the appropriate memory.

UNIVAC 9400 Software

Main Storage	9400 System	Operating System: Tape	Operating System: Disc
24K	Job Control	■	■
	Report Program Generator	■	■
	Assembler	■	■
	Sort/Merge	■	■
	Data Management	■	■
32K 49K	All 24K Support		
	Symbiont Concurrency Multiprogramming	■	■
	Time Allocation	■	■
	Simulated Day Clock	■	■
	Interval Timer Services	■	■
	Channel Adapters	■	■
	Message Control Program	■	■
	Basic COBOL	■	■
	FORTRAN	■	■
65K 98K 131K	All 32K Support		
	Extended COBOL		■

A Planning Guide for Faster Installation

UNIVAC has developed planning guides to speed and smooth the installation of 9000 Systems. With its easy-to-use conversion methods and special documentation, this guide simplifies the task of preparing for a new computer. It outlines each step and shows you how to record and analyze pertinent information as the job proceeds. Special forms and work charts relate each and every step.

The guide covers these important factors in the installation of a new computer system.

- Installation scheduling and control—establishes management control over the conversion task so you can quickly evaluate the progress and completeness of your work.
- Documenting present applications—a necessary step to reveal any operational changes that may be desired before application development or programming.
- Applications development—sets up actual computer procedures with exact requirements for each operation in terms of improved efficiency.
- Programming—establishes a series of related steps or instructions which tell the computer exactly how to handle each complete problem.

The fully-documented planning guide is part of the total 9000 Series package for efficient, economical electronic data processing.